

Developing Biological Systems for Direct Conversion of Carbon Dioxide and Methane to Liquid Transportation Fuels

Frontiers in Biological Sciences
Seminar Series

Presented by...

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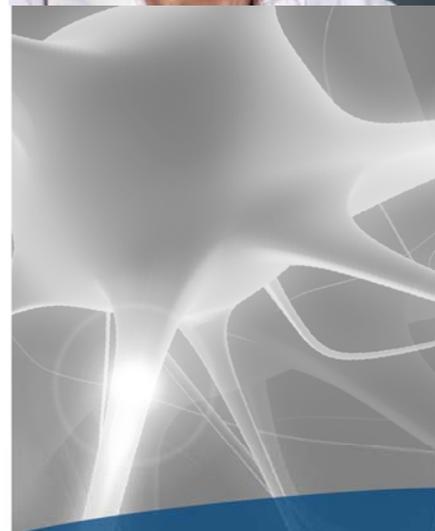
At LBNL, scientists are using synthetic biology and metabolic engineering to develop biological systems for direct conversion of CO₂ and CH₄ to liquid transportation fuels. Dr. Jansson will describe two ARPA-E projects: FOLIUM, which aims at establishing tobacco as a platform for foliar production of hydrocarbon fuels; and METHYLASE, which focuses on designing a novel enzyme and metabolic cycle for CH₄ assimilation and conversion to fuels.

In its third and final year, the FOLIUM project's main objectives are to: 1) install and optimize biosynthetic pathways for alkanes and terpenes in tobacco for expression in the leaf chloroplasts; 2) enhance photosynthesis by increasing light utilization efficiency and CO₂ uptake; 3) increase tobacco biomass yield in the field by improved agricultural practices; and 4) develop a business model and transfer the technology. In METHYLASE, which started in January, they are applying rational design and accelerated evolution through DNA shuffling to convert an existing enzyme to a methylase. This methylase will then be incorporated into a new CH₄ assimilation cycle for the purpose of net production of acetyl-CoA as a fuel precursor.

More info?

See

<http://esd.lbl.gov/about/staff/christerjansson/>



Date: Tuesday,
February 18, 2014

Location: EMSL
Auditorium

Time: 1:30 p.m.